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Core Analysis of Portland Cement Concrete
Slip Formed Barriers

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8. ABSTRACT

Premature deterioration of slip formed portland cement concrete (PCC) barriers is an ongoing problem in the Iowa Primary and Interstate highway system. The requirement to have a concrete mix which can be sufficiently pliable to be readily molded into the barrier shape and yet be sufficiently stiff to maintain a true shape and height immediately after molding is difficult to meet. A concrete mix which is stiff enough to maintain its shape immediately after molding is usually difficult to work with. It often contains open or hidden tears and large voids. One way to minimize the molding resistance is by additional vibration. If intensive vibration is applied, the entrapped air voids and tears in the concrete can usually be eliminated, however, in that process, the essential entrained air content can also be lost. In the evaluation of slip formed PCC barriers, it is common to find large voids, tears and a low entrained air content, all contributing to premature deterioration.

A study was initiated to evaluate core samples taken from good and from bad appearing areas of various median barriers. Evaluations were done covering visual appearance, construction information, air content and chloride content.

9. KEY WORDS

Slip formed barrier
Concrete deterioration

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